

The Dutch approach to One Health, collaboration between Human and Veterinary Sciences

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WBVR Vision

WBVR contributes to a society where animals and humans live a healthy life by scientific research to **prevent** the spread of **animal diseases** and **promote health**



One Health

- 'One Health' is an **integrated**, unifying approach to balance and optimize the health of **people, animals** and the **environment**. It is particularly important to **prevent, predict, detect**, and respond to global health threats such as the COVID-19 pandemic.



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Prof. dr Annemarie Rebel (WUR)
Chair NCOH Executive Board



Associate



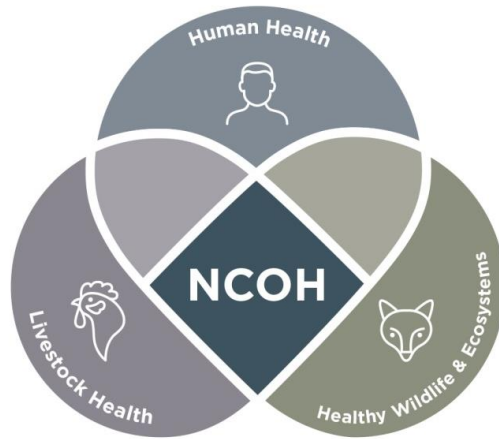
The importance of healthy livestock

400	residents
1,085	chickens
290	pigs
25	calves
25	sheep
74	cows

Per km²



The One Health perspective



- Aiming for an integrated One Health approach to tackle the global risk of infectious diseases
- Creating durable solutions for this major challenge by bundling world-leading academic top research in the area of One Health



Rational and societal challenges

WHO publishes list of top emerging diseases likely to cause major epidemics



WHO HQ SHOC Room

R&D Blueprint

List of Blueprint priority diseases



2018 annual review of the Blueprint list of priority diseases

For the purposes of the R&D Blueprint, WHO has developed a special tool for determining which diseases and pathogens to prioritize for research and development in public health emergency contexts. This tool seeks to identify those diseases that pose a public health risk because of their epidemic potential and for which there are no, or insufficient, countermeasures. The diseases identified through this process are the focus of the work of R&D Blueprint. This is not an exhaustive list, nor does it indicate the most likely causes of the next epidemic.

The first list of prioritized diseases was released in December 2015.

Using a published prioritization methodology, the list was first reviewed in January 2017.

February 2018 - Second annual review

The second annual review occurred 6-7 February, 2018. Experts consider that given their potential to cause a public health emergency and the absence of efficacious drugs and/or vaccines, there is an urgent need for accelerated research and development for:

- Crimean-Congo haemorrhagic fever (CCHF)
- Ebola virus disease and Marburg virus disease

OIE web site (V) and Severe Acute

English |

 **WORLD ORGANISATION FOR ANIMAL HEALTH**
Protecting animals, preserving our future



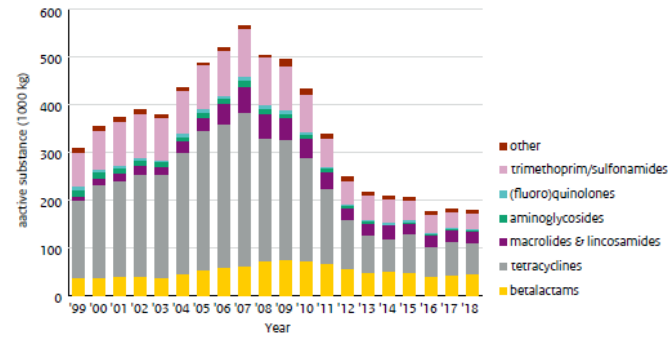
World Animal
Health



Rational and societal needs

- Healthy animals and reduction of antibiotic usages

Figure ABuse01 Antimicrobial veterinary medicinal product sales 1999-2018 in kg (thousands).



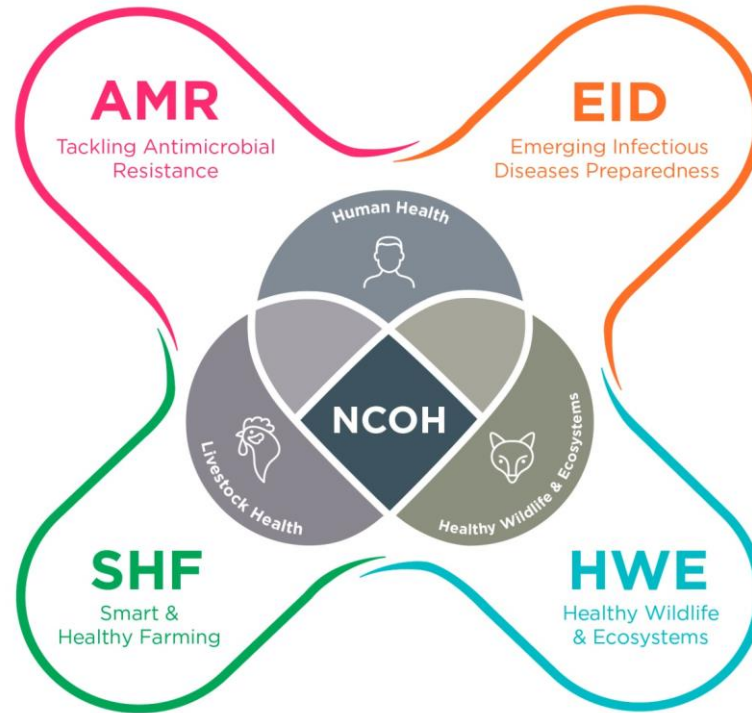
Healthy people living together with healthy livestock

Changes in the environment

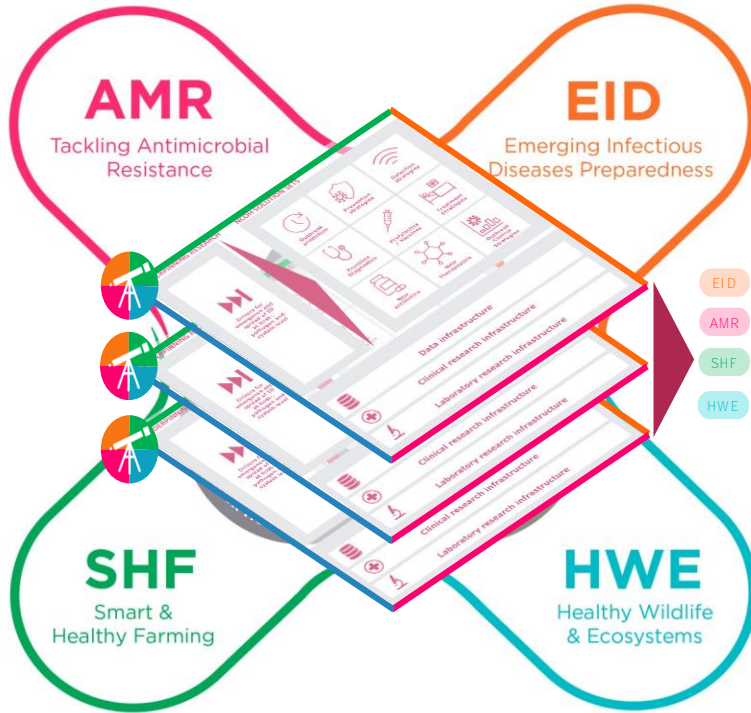


All the time

Complimentary & interactive Strategic Research Themes



NCOH 2022-2027



4 theme's
+
overarching topics



Collaborations during COVID-19 pandemic and Avian flu epidemic → pandemic preparedness & response



NCOH activities – community building

○ Face-to-face events

- NCOH Science Café: 1x/year
- NCOH Annual Scientific Meeting: 1x/year
- Master classes with YOUNG NCOH
- Young NCOH activities

○ Digital

- NCOH website: ncoh.nl
- NCOH newsletter: 3-4x/year
- Twitter @ncohn1
- LinkedIn
- Webinars: 2-3 per year



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NCOH News >

**Invitation – NCOH Annual Scientific Meeting,
30 May 2018**

22 February 2018

With great pleasure, we invite you to the Annual Scientific Meeting of the Netherlands Centre for One Health (NCOH). The meeting is aimed at researchers from our Partners and Associates that are involved in all the NCOH Strategic Research Themes. We particularly encourage young researchers (PhD students, postdocs) to join this meeting. The event is free of charge, but registration is required.

Phage therapy for when antibiotics stop working?

22 February 2018



On 22 February, an international symposium was organized on the possibilities of phage therapy in the treatment of patients with infections due to resistant bacteria.



Factsheet 2022

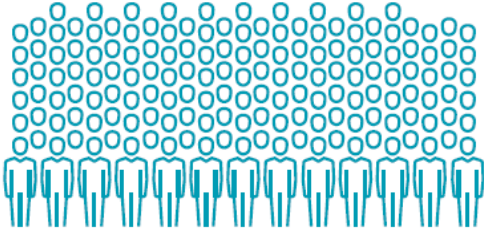
9 Partners + 1 Associate



98 Principal Investigators



> 400 active participants



50 million invested



> 30 collaborative projects



> 65 PhD students



NCOH PhD research programme

All PhD projects grouped in 3 overarching themes

Research Topic

**Complex systems &
Metagenomics**

Research Topic

**Disease intervention
strategies**

Research Topic

Vector-borne diseases



Future challenges:

- * Global / European:
pandemic preparedness,
global health, biodiversity,
climate change, protein shift
- * National level Netherlands:
pandemic preparedness,
Avian influenza
Blue tongue

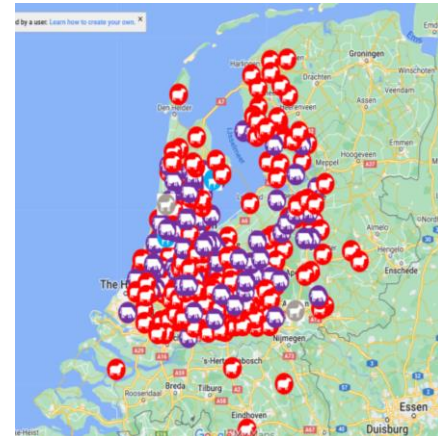


Dynamics in livestock farming



One Health

- Infectious diseases: Avian influenza
- AMR: prevention of usage, detection resistance
- Foodborne diseases
- Wildlife-livestock: African Swine Fever
- Vector born: Bluetongue (Culicoides midges)



Prevention and prediction: what can we do

- **Quarantining** and testing prior to new animals introductions
- Waste disposals from farms
- **biosecurity** including buffer zones to wild-life, between farm bio-exclusion
- on-farm surveillance of animal health to enable **early detection** and on-farm containment (and eradication)vaccination (DIVA), trade restrictions
- **resilient systems**: healthy & resilient animals (incl wildlife) as preventive measure (lower dose, better response)

Improving intestinal health in livestock

How to steer the factors influencing intestinal functionalities?

Antibiotics
Prebiotics
Probiotics

Enrichment

Microbiota •



• Housing system



• Genetical potential **n > 1,000**

Animal feed •

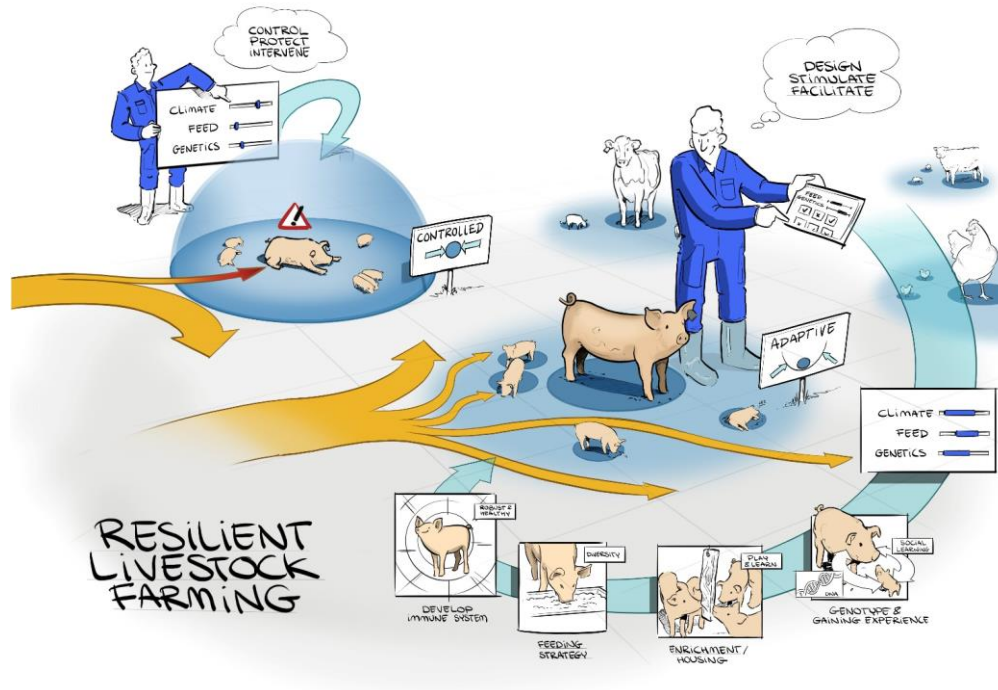


• Immune system

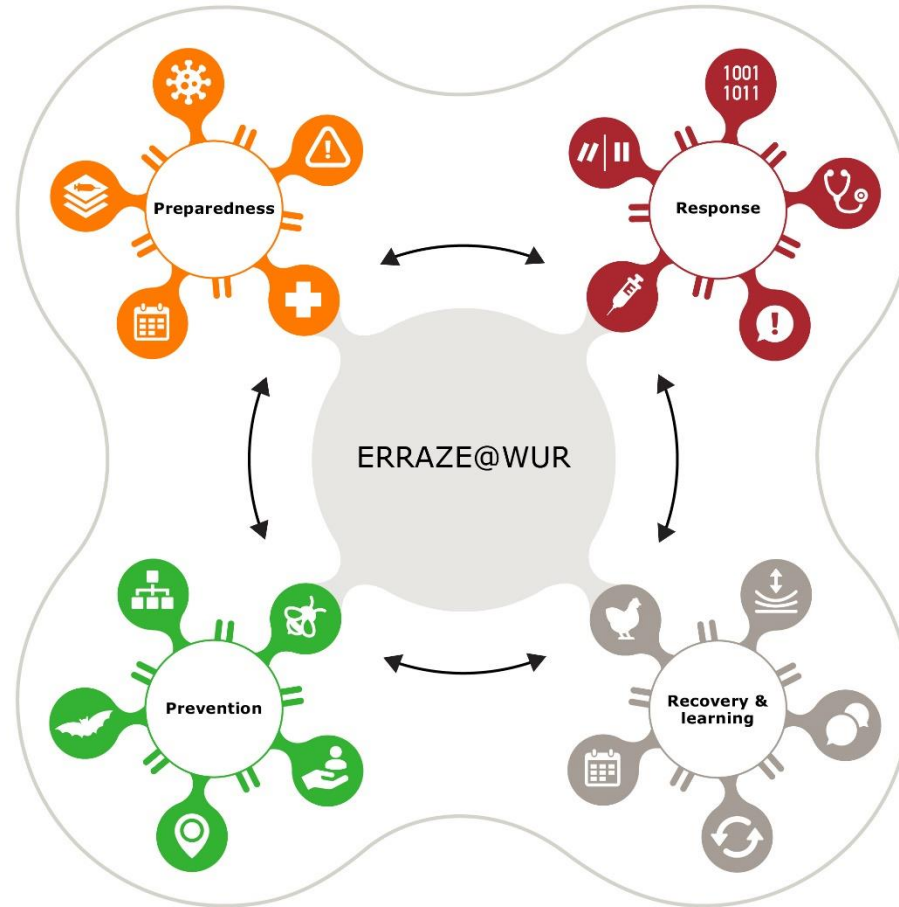
Diet composition
Feed additives

Development
Early life

Healthy and resilient livestock



Erraze



NCOH 2022-2027



NCOH emerging pandemic preparedness

Overarching topics:

1. Pandemic Preparedness II (Topsector, ZonNw)
2. One Health PACT
3. Epidemic-resilient future farming
4. AMR Global Health
5. other...

